Nuclear Medicine and Biology

International Journal of Radiation Applications and Instrumentation Part B

List of Contents and Author Index
Volume 18 1991

PERGAMON PRESS
OXFORD · NEW YORK · SEOUL · TOKYO

NUCLEAR MEDICINE AND BIOLOGY

INTERNATIONAL JOURNAL OF RADIATION APPLICATIONS AND INSTRUMENTATION PART B

Founder Editor: *The late Professor J. Sternberg*

EDITOR-IN-CHIEF

W. C. ECKELMAN, *Room 1C-401, Building 10, Clinical Center, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892, U.S.A.*

CONSULTING EDITOR

W. B. MANN, *Center for Radiation Research, National Institute of Standards and Technology, Gaithersburg, MD 20899, U.S.A.*

EDITORS

J. R. BARRIO, *UCLA School of Medicine, Department of Radiological Sciences, Division of Nuclear Medicine and Biophysics, Los Angeles, CA 90024, U.S.A.*

E. W. BRADLEY, *Special Review Branch, National Institutes of Health, Rm 2A18A, 5333 Westbard Avenue, Bethesda, MD 20892, U.S.A.*

H.-H. COENEN, *Institut für Chemie 1, Kernforschungsanlage Jülich GmbH, Postfach 1913, D-5170 Jülich, Fed. Rep. Germany*

B. M. COURSEY, *Center for Radiation Research, National Institute of Standards and Technology, Gaithersburg, MD 20899, U.S.A.*

A. G. JONES, *Department of Radiology, Harvard Medical School, 50 Binney Street, Boston, MA 02115, U.S.A.*

M. R. KILBOURN, *The University of Michigan Medical School, Cyclotron/P.E.T. Facility, 3480 Kresge III, Ann Arbor, MI 48109-0552, U.S.A.*

R. P. SPENCER, *University of Connecticut Health Center, Farmington, CT 06032, U.S.A.*

D. M. TAYLOR, *IGT, Kernforschungszentrum Karlsruhe, Postfach 3640, D-7500 Karlsruhe 1, Fed. Rep. Germany*

M. L. THAKUR, *804 Main Building, Nuclear Medicine Department, Thomas Jefferson University, Philadelphia, PA 19107, U.S.A.*

A. WAGNER, *Centre de Transfusion Sanguine, Institut d'Hématologie, Avenue Emile Jeanbrau, 34000 Montpellier, France*

H. N. WAGNER JR, *Department of Nuclear Medicine and Radiation Health Science, The Johns Hopkins Medical Institution, 615 North Wolf Street, Baltimore, MD 21205, U.S.A.*

A. YOKOYAMA, *Faculty of Pharmaceutical Sciences, Kyoto University, Sakyo-ku, Kyoto, Japan*

M. R. ZALUTSKY, *Box 3808, Department of Radiology, Duke University Medical Center, Durham, NC 27710, U.S.A.*

Publishing Office: Pergamon Press plc, Pergamon House, Bampfylde Street, Exeter EX1 2AH, England [*Tel.* Exeter (0392) 51558; *Fax* 425370]

Subscription and Advertising Offices: *North America:* Pergamon Press Inc., 395 Saw Mill River Road, Elmsford, NY 10523, U.S.A. *Rest of the World:* Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England [*Tel.* Oxford (0865) 794141]

Subscription Rates: Annual institutional subscription rate (1992): Part B, *Nuclear Medicine and Biology:* 1-yr, £255.00 (US$410.00); 2-yr, £484.50 (US$779.00). Combined subscriptions Parts A–E: 1-yr, £1600.00 (US$2560.00); 2-yr, £3040.00 (US$4864.00). Part A, *Applied Radiation and Isotopes:* 1-yr, £475.00 (US$760.00); 2-yr, £902.50 (US$1444.00). Part C, *Radiation Physics and Chemistry:* 1-yr, £550.00 (US$880.00); 2-yr, £1045.00 (US$1672.00). Part D, *Nuclear Tracks and Radiation Measurements:* 1-yr, £240.00 (US$385.00); 2-yr, £456.00 (US$731.50). Part E, *Nuclear Geophysics:* 1-yr, £260.00 (US$415.00); 2-yr, £494.00 (US$788.50). Sterling prices are definitive. US$ prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request.

Back Issues: Back issues of all previously published volumes, in both hard copy and in microform, are available direct from Pergamon Press offices.

Publication Frequency: 8 issues per annum.

Copyright © 1991 Pergamon Press plc

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appears in this journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Photocopying information for users in the U.S.A. The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the US Copyright Law, is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970, U.S.A.

Permission for other use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying.
The Item-fee Code for this publication is: 0883-2897/91 $3.00 + 0.00

The text paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

CONTENTS OF VOLUME 18

Number 1

PROCEEDINGS OF THE SECOND INTERNATIONAL CONFERENCE ON DIAGNOSIS AND THERAPY WITH MONOCLONAL ANTIBODIES

Part I

Steven M. Larson — 1 Introduction. Second International Conference on Diagnosis and Therapy with Monoclonal Antibodies

Basic Science

W. C. Eckelman and J. Steigman — 3 Direct labeling with ^{99m}Tc

R. Finn, N-K. V. Cheung, C. Divgi, J. St Germain, M. Graham, K. Pentlow and S. M. Larson — 9 Technical challenges associated with the radiolabeling of monoclonal antibodies utilizing short-lived, positron emitting radionuclides

Maria I. Colnaghi — 15 Generation of monoclonal antibodies for *in vivo* approaches

E. Seccamani, L. Tarditi, C. Bonino, M. Camagna, G. Moscatelli, M. Mariani and P. Riva — 19 A new enzymatic method gives $F(ab)_2$ suitable for ^{99m}Tc labeling and use in immunoscintigraphy

Elissa L. Kramer and Marilyn E. Noz — 27 CT–SPECT fusion for analysis of radiolabeled antibodies: applications in gastrointestinal and lung carcinoma

S. J. Adelstein, A. I. Kassis, J. Baranowska-Kortylewicz, A. D. Van den Abbeele, G. Mariani and S. Ito — 43 Potential for tumor therapy with iodine-125 labeled immunoglobulins

Cancer Diagnosis

Colorectal Cancer

G. L. Buraggi, M. Gasparini and E. Seregni — 45 Immunoscintigraphy of colorectal carcinoma with an anti-CEA monoclonal antibody: a critical review

C. Aprile, U. Prati, R. Saponaro, L. Roveda, M. Carena and L. Gastaldo — 51 Radioimmunolocalization of pelvic recurrences from rectosigmoid cancer employing ^{111}In anti-CEA $F(ab')_2$

M. Fraile, M. Buxeda, J. Castell, M. Torres, A. Jimenez-Heffernan, A. Mateo, B. Soriano and F. M. Doménech-Torné — 53 Anti-CEA monoclonal antibody ^{99m}Tc–BW 431/26 in the diagnostic workup of patients with colorectal cancer

J. C. Roos, E. J. Derksen, A. van Lingen, B. Postma, J. J. M. van der Hoeven, W. den Hollander, M. van Loon, S. Meijer and G. J. J. Teule — 59 Qualitative and quantitative kinetics of submucosally administered antibody fragments in patients with rectal carcinoma: the detection of lymph node metastasis in relation to local tracer diffusion

N. Rilinger, D. L. Munz, H. Niemann, H. J. Illiger and H. J. Halbfaß — 65 Immunoscintigraphy using different methods of applying a ^{99m}Tc labeled monoclonal anti-CEA-antibody in the staging of patients with liver metastases before partial hepatectomy

Ovarian Cancer

G. Barzen, J. Hierholzer, M. Cordes, W. Friedmann and R. Felix — 69 Primary diagnosis and follow-up of ovarian cancer: radioimmunoscintigraphy with iodine-131 labeled OC 125 monoclonal antibodies versus computed tomography and "second look"

Leon F. A. G. Massuger, Roland A. M. J. Claessens, Koon Y. Pak, Otto C. Boerman, Peter E. Daddona, Emile B. Koenders, Peter Kenemans and Frans H. M. Corstens — 77 Tissue distribution of ^{99m}Tc, ^{111}In and ^{123}I–OV-TL 3 Fab′ in ovarian carcinoma bearing nude mice

S. Del Vecchio, L. Camera, A. Petrillo, G. Esposito, G. Frasci, R. V. Iaffaioli, A. R. Bianco and M. Salvatore — 85 Clinical studies with B72.3 in ovarian cancer and probe-guided tumor localization

Other Cancers

Peter Reuland, Eva Koscelniak, Peter Ruck, Jörn Treuner and Ulrich Feine — 89 Application of an anti-myosin antibody for scintigraphic differential-diagnosis of infantile tumors

M. V. Carriero, A. M. Bevilacqua, A. Borrelli, M. Di Bonito, F. Tatangelo and A. Apicella — 95 Ki-67 and B72.3 expression in breast cancer: an immunohistochemical study

M. Correale, I. Abbate, G. Gargano, M. Garrubba, A. Muncipinto, L. Addabbo and D. Colangelo — 101 Serum TAG 72 levels in different human carcinomas

Cancer Therapy

Janet F. Eary — 105 Fundamentals of radioimmunotherapy

P. Riva, M. Marangolo, V. Tison, L. Armaroli, G. Moscatelli, G. Franceschi, A. Spinelli, G. Vecchietti, P. Morigi, R. Tassini, N. Riva and D. Tirindelli — 109 Treatment of metastatic colorectal cancer by means of specific monoclonal antibodies conjugated with iodine-131: a phase II study

P. Reuland, R. Handgretinger, H. Smykowsky, R. Dopfer, T. Klingebiel, B. M. Miller, R. A. Reisfeld, S. Gallagher, E. Koscelniak, J. Treuner, D. Niethammer and U. Feine — 121 Application of the murine anti-Gd-2 antibody 14.Gd-2a for diagnosis and therapy of neuroblastoma

Non-neoplastic Disease

H. W. Strauss, A. J. Fischman, B. A. Khaw and R. H. Rubin — 127 Non-tumor applications of radioimmune imaging

D. Roll, J. Hierholzer, M. Cordes, W. Hepp, M. Langer, C. Zwicker and R. Felix — 135 Diagnostic evaluation of radioimmunoscintigraphy (RIS) using ^{123}I-labeled monoclonal antibodies against human granulocytes (Mab-47) for the detection of prosthetic vascular graft infection

J. Verdú, M. Fraile, J. Castell, M. Buxeda, M. Ysamat, M. Gonzalez and F. M. Doménech-Torné — 141 Clinical comparison of ^{99m}Tc–antigranulocyte (BW 250/183) and ^{111}In–leukocyte imaging: first results

P. D'Amico, S. Lastoria, N. Caccavella and M. Salvatore — 145 Radiolabelled granulocytes in inflammatory bone disease

Number 2

W. C. Eckelman and W. B. Mann — 149 Guidelines to authors submitting papers to the *International Journal of Radiation Applications and Instrumentation*

Michael Rubart, Wolf Breull and Norbert Hahn — 157 Regional metabolic rate of exogenous glucose in the isoprenaline and dobutamine stimulated canine myocardium as estimated by the 2-deoxy-D[1-^{14}C]glucose method

M. Corlija, W. A. Volkert, C. S. John, M. R. A. Pillai, J. M. Lo, D. E. Troutner and R. A. Holmes — 167 Biolocalization and cell labeling properties of neutral-lipophilic ^{99m}Tc–amine–phenol chelates

C. L. de Ligny, W. J. Gelsema and W. E. Meijs — 173 A chromatographic study of the composition of [^{99m}Tc]Tc(Sn)EHDP complexes

Ahmad Najafi, Mian M. Alauddin, Michael E. Siegel and Alan L. Epstein — 179 Synthesis and preliminary evaluation of a new chelate N_2S_4 for use in labeling proteins with metallic radionuclides

A. Rathinaswamy, U. H. Nagvekar, J. Chatur, V. Nirmala, K. Rani, N. Ramamoorthy, S. A. Balakrishnan and C. N. Desai — 187 Superiority of the use of a pre-incubated complex of primary and second antibody in the radioimmunoassay of thyroid hormones

Kazuo Kubota, Toshihiro Takahashi, Takehiko Fujiwara, Susumu Yamada, Tachio Sato, Roko Kubota, Ren Iwata, Kiichi Ishiwata, Tatsuo Ido and **Taiju Matsuzawa** — 191 Possibility for tumor detection with fatty acid analogs

Bernard J. G. Daemen, Philip H. Elsinga, Kiichi Ishiwata, Anne M. J. Paans and **Willem Vaalburg** — 197 A comparative PET study using different ^{11}C-labelled amino acids in Walker 256 carcinosarcoma-bearing rats

Yasuhito Ohkubo, Hiroaki Sawamura, Shinsuke Katoh, Akiko Sasayama, Kenichi Abe, Hiroyuki Kohno and **Akiko Kubodera** — 205 Studies on ^{67}Ga uptake by mouse granuloma tissues

Bonnie B. Dunn, Michael A. Channing, H. Richard Adams, David S. Goldstein, Kenneth L. Kirk and **Dale O. Kiesewetter** — 209 A single column, rapid quality control procedure for 6-[^{18}F]fluoro-L-dopa and 6-[^{18}F]fluorodopamine PET imaging agents

Robert H. Mach, Hank F. Kung, Piyanut Jungwiwattanaporn and **Yu-Zhi Guo** — 215 Synthesis and biodistribution of a new class of ^{99m}Tc-labeled fatty acid analogs for myocardial imaging

M. L. Thakur, J. DeFulvio, M. D. Richard and **C. H. Park** — 227 Technetium-99m labeled monoclonal antibodies: evaluation of reducing agents

J. Ghiron, W. A. Volkert, J. Garlich and **R. A. Holmes** — 235 Determination of lesion to normal bone uptake ratios of skeletal radiopharmaceuticals by QARG

Stephen Scott-Robson, Jacek Capala, Jörgen Carlsson, Petter Malmborg and **Hans Lundqvist** — 241 Distribution and stability in the rat of a ^{76}Br/^{125}I-labelled polypeptide, epidermal growth factor

Dah-Ren Hwang, Carmen S. Dence, Zoe Ann McKinnon, Carla J. Mathias and **Michael J. Welch** — 247 Positron labeled muscarinic acetylcholine receptor antagonist: 2- and 4-[^{18}F]fluorodexetimide. Syntheses and biodistribution

Meral T. Ercan, Süleyman A. Tuncel, Biray E. Caner, Mehmet Mutlu and **Erhan Pişkin** — 253 Evaluation of ^{99m}Tc labelled monodisperse polystyrene/polyacrylate latex particles for the study of colon transit and morphology

Technical Notes

Leopold J. Anghileri — 259 Cell labelling with ^{67}Ga–citrate

A. A. Keeling and **R. P. Beaney** — 261 Yttrium-87 for *in vivo* imaging

Number 3

Mita Chatterjee and **Somenath Banerjee** — 263 Functionalization of hydroxy compounds with nitrilotriacetic acid for technetium-99m chelation: excretory properties of the radiolabelled chelates

G.-J. Wang, Z. H. Oster, P. Som and **P. O. Zamora** — 275 A monoclonal antibody reacting with platelets for monitoring thrombolysis

Chyng-Yann Shiue, Lan-Qin Bai, Ren-Rui Teng, Carroll D. Arnett, Stephen L. Dewey, Alfred P. Wolf, Daniel W. McPherson, Joanna S. Fowler, Jean Logan, M. Jean Holland and **Eric J. Simon** — 281 A comparison of the brain uptake of *N*-(cyclopropyl[^{11}C]methyl)-norbuprenorphine ([^{11}C]buprenorphine) and *N*-(cyclopropyl-[^{11}C]methyl)nordiprenorphine ([^{11}C]diprenorphine) in baboon using PET

Susan L. Madsen, Christopher J. Bannochie, Michael J. Welch, Carla J. Mathias and **Arthur E. Martell** — 289 TMPHPG: a lipophilic derivative of EHPG for iron, gallium-68 and indium-111 hepatobiliary clearance

Shrishailam Yemul, Jorge A. Leon, David W. Seldin, Mary-Jean Link, Peter Kramer, Ricardo Mesa-Tejada and **Alison Estabrook** — 295 Tumor localization in nude mice bearing human breast carcinoma xenografts using ^{111}In-DTPA conjugates of monoclonal antibodies

P. A. Schubiger, H.-F. Beer, L. Geiger, H. Rösler, A. Zimmermann, J. Triller, D. Mettler and W. Schilt — 305 ^{90}Y-resin particles—animal experiments on pigs with regard to the introduction of superselective embolization therapy

L. C. Washburn, T. T. H. Sun, Y-C. C. Lee, B. L. Byrd, E. C. Holloway, J. E. Crook, J. B. Stubbs, M. G. Stabin, M. W. Brechbiel, O. A. Gansow and Z. Steplewski — 313 Comparison of five bifunctional chelate techniques for ^{90}Y-labeled monoclonal antibody CO17-1A

Y. Sun, C. J. Mathias, M. J. Welch, S. L. Madsen and A. E. Martell — 323 Targeting radiopharmaceuticals—II. Evaluation of new trivalent metal complexes with different overall charges

S. Murugesan, M. C. Patel, P. Ramanathan, A. M. Samuel, V. S. Lalitharao and N. Hasgekar — 331 Regional distribution study of brain perfusion and metabolic agents in normal and tumour bearing rat brains using autoradiographic technique

S. P. Hume, C. Pascali, V. W. Pike, D. R. Turton, R. G. Ahier, R. Myers, D. M. Bateman, J. E. Cremer, L. G. Manjil and R. Dolan — 339 Citalopram: labelling with carbon-11 and evaluation in rat as a potential radioligand for *in vivo* PET studies of 5-HT re-uptake sites

Etienne Joiris, Benoit Bastin and John R. Thornback — 353 A new method for labelling of monoclonal antibodies and their fragments with technetium-99m

D. Le Bars, P. Thivolle, P. A. Vitte, C. Bojkowski, G. Chazot, J. Arendt, R. S. J. Frackowiak and B. Claustrat — 357 PET and plasma pharmacokinetic studies after bolus intravenous administration of [^{11}C]melatonin in humans

Letters to the Editors

D. Scott Wilbur and Mark D. Hylarides — 363 Radiolabeling of a monoclonal antibody with *N*-succinimidyl *para*-[^{77}Br]bromobenzoate

Aldo Rescigno, A. Bertrand Brill, Harry Bushe and Don J. Hnatowich — 367 Comments on "Compartmental biodistribution of a monoclonal antibody against human lung adenocarcinoma grown in athymic mice"

Jashovam Shani, Shaharuddin Bin Mohd, Walter Wolf and Leslie Walker — 368 Authors' reply

Announcement — i

Number 4

PROCEEDINGS OF THE SECOND INTERNATIONAL CONFERENCE ON DIAGNOSIS AND THERAPY WITH MONOCLONAL ANTIBODIES

Part II

Basic Science

Otto A. Gansow — 369 Newer approaches to the radiolabeling of monoclonal antibodies by use of metal chelates

Cancer Diagnosis

P. Ferroni, D. E. Milenic, M. Roselli, J. A. Carrasquillo, A. Raubitschek, J. Schlom and D. Colcher — 383 Potential artifact for the increase of tumor associated antigens in serum samples from patients injected with monoclonal antibodies

Mario Roselli, Jeffrey Schlom, Otto A. Gansow, Martin W. Brechbiel, Saed Mirzadeh, C. Greg Pippin, Diane E. Milenic and David Colcher — 389 Comparative biodistribution studies of DTPA-derivative bifunctional chelates for radiometal labeled monoclonal antibodies

David Colcher, Diane E. Milenic, Patrizia Ferroni, Mario Roselli and Jeffrey Schlom — 395 *In vivo* and *in vitro* clinical applications of monoclonal antibodies against TAG-72

Massimo Gadina, Silvana Canevari, Marina Ripamonti, Massimo Mariani and Maria Ines Colnaghi — 403 Preclinical pharmacokinetics and localization studies of the radioiodinated anti-ovarian carcinoma MAb MOv18

Fiorella Guadagni, Jeffrey Schlom and John W. Greiner — 409 *In vitro* and *in vivo* regulation of tumor antigen expression by human recombinant interferons

Maria Granowska, Stephen J. Mather and Keith E. Britton — 413 Diagnostic evaluation of ^{111}In and ^{99m}Tc radiolabelled monoclonal antibodies in ovarian and colorectal cancer: correlations with surgery

Jeffrey Schlom, Diane E. Milenic, Mario Roselli, David Colcher, Robert Bird, Syd Johnson, Karl D. Hardman, Fiorella Guadagni and John W. Greiner — 425 New concepts in monoclonal antibody based radioimmunodiagnosis and radioimmunotherapy of carcinoma

Cancer Therapy

M. J. Merino, C. Monteagudo and R. D. Neumann — 437 Monoclonal antibodies for radioimmunoscintigraphy of breast cancer

Number 5

Hasmukh B. Patel, Fazle Hosain, Richard P. Spencer, Hans-Dieter Scharf, Michael S. Skulski and Alan Jansujwicz — 445 Radioiodination and biodistribution of analogs of a calichemicin constituent

U. Häfeli, L. X. Tiefenauer, P. A. Schubiger and H. G. Weder — 449 A lipophilic complex with ^{186}Re/^{188}Re incorporated in liposomes suitable for radiotherapy

Irene Dormehl, Gerhard Ras, Graham Taylor and Niek Hugo — 455 Effect of *Pseudomonas aeruginosa*-derived pyocyanin and 1-hydroxyphenazine on pulmonary mucociliary clearance monitored scintigraphically in the baboon model

Mrinal K. Dewanjee, Ronald P. Robinson, Robert L. Hellman, William I. Ganz, Aldo N. Serafini and George N. Sfakianakis — 461 Technetium-99m-labeled platelets: comparison of labeling with a new lipid-soluble Sn(II)–mercaptopyridine-*N*-oxide and ^{99m}Tc–HMPAO

A. Harrison, C. A. Walker, D. Parker, K. J. Jankowski, J. P. L. Cox, A. S. Craig, J. M. Sansom, N. R. A. Beeley, R. A. Boyce, L. Chaplin, M. A. W. Eaton, A. P. H. Farnsworth, K. Millar, A. T. Millican, A. M. Randall, S. K. Rhind, D. S. Secher and A. Turner — 469 The *in vivo* release of ^{90}Y from cyclic and acyclic ligand–antibody conjugates

S. W. Schwarz, C. J. Mathias, J. Y. Sun, W. G. Dilley, S. A. Wells Jr, A. E. Martell and M. J. Welch — 477 Evaluation of two new bifunctional chelates for radiolabeling a parathyroid-specific monoclonal antibody with In-111

K. Y. Pak, M. A. Nedelman, W. E. Fogler, S. H. Tam, E. Wilson, L. J. M. van Haarlem, R. Colognola, S. O. Warnaar and P. E. Daddona — 483 Evaluation of the 323/A3 monoclonal antibody and the use of technetium-99m-labeled 323/A3 Fab′ for the detection of pan adenocarcinoma

Atsushi Takeda, Tomoko Hibino, Akihiko Hoshino, Hayato Okumura and Shoji Okada — 499 Role of serum albumin as a carrier of ^{99m}Tc-complex to tumor tissue

Bernard J. G. Daemen, Philip H. Elsinga, Anne M. J. Paans, Willy Lemstra, Antonius W. T. Konings and Willem Vaalburg — 503 Suitability of rodent tumor models for experimental PET with L-[1-^{11}C]tyrosine and 2-[^{18}F]fluoro-2-deoxy-D-glucose

Irene Virgolini, Peter Angelberger, Graziana Lupattelli, Shuren Li, Johann Pidlich, Ewald Molinari and Helmut Sinzinger — 513 Comparison of different methods for LDL isolation and radioiodination on liver LDL receptor binding *in vitro*

Katherine Sheldon, Raymond Reilly, Reuben Baumal and Alexander Marks — 519 Imaging of human ovarian tumour xenografts in nude mice using a novel ^{111}In-labelled monoclonal antibody (10B)

Donald F. Palme II, Jinny M. Berkopec, Barry W. Wessels, Michael K. Elson, Paul H. Lange and Robert L. Vessella — 527 Dosimetry and pharmacokinetics of monoclonal antibody A6H with human renal cell carcinoma xenografts: single dose study

Kiichi Ishiwata, Kiyotaka Sato, Motonobu Kameyama, Takashi Yoshimoto and Tatsuo Ido — 539 Metabolic fates of 2′-deoxy-5-[^{18}F]fluorouridine in tumor-bearing mice and human plasma

J. R. Dilworth, C. M. Archer, I. A. Latham, J. D. Kelly, D. V. Griffiths, D. C. York, P. M. Mahoney and B. Higley — 547 Lipophilic ^{99m}Tc-nitride radiopharmaceuticals as potential myocardial imaging agents

Christy S. John, Mei-Ping Kung, Jeffrey Billings and Hank F. Kung — 551 Preparation, radiolabeling and biodistribution of a new class of bisaminothiol (BAT) ligands as possible imaging agents

C. A. Otto, G. K. Mulholland, S. B. DeMattos, P. S. Sherman, T. L. Pisani and G. Hingorani — 557 Evaluation of quaternized and neutral muscarinic receptor ligands in normal and DES-treated rat

Technical Notes

Susan E. MacWhorter and Ronald M. Baldwin — 563 Synthesis and biodistribution of ^{123}I *N*-(2-aminoethyl)-5-iodo-2-pyridinecarboxamide (Ro 43-0463), a monoamine oxidase B inhibitor

Christine A. Henry, Anaira C. Clavo and Richard L. Wahl — 565 Improved monoclonal antibody tumor/background ratios with exchange transfusions

Number 6

CURRENT TRENDS AND FUTURE PERSPECTIVES IN NUCLEAR MEDICINE

Suresh C. Srivastava and William C. Eckelman — v Preface

William A. Wegener and Abass Alavi — 569 Positron emission tomography in the investigation of neuropsychiatric disorders: update and comparison with magnetic resonance imaging and computerized tomography

M. Donald Blaufox — 583 The role and rationale of nuclear medicine procedures in the differential diagnosis of renovascular hypertension

Suresh C. Srivastava and Ronnie C. Mease — 589 Progress in research on ligands, nuclides and techniques for labeling monoclonal antibodies

M. L. Thakur, J. DeFulvio, C. H. Park, A. Damjanov, H. Yaghsezian, D. Jungkind, A. Epstein and J. G. McAfee — 605 Technetium-99m-labeled proteins for imaging inflammatory foci

James F. Morris, Shakuntala Krishnamurthy, Ruza Antonovic, Carol Duncan, Frederick E. Turner and Gerbail T. Krishnamurthy — 613 Technetium-99m monoclonal antibody fragment (FAb) scintigraphy in the evaluation of small cell lung cancer: a preliminary report

Sally J. DeNardo, Lois F. O'Grady, Daniel J. Macey, Linda A. Kroger, Gerald L. DeNardo, Kathleen R. Lamborn, Norman B. Levy, Stanley L. Mills, Ingegerd Hellstrom and Karl Erik Hellstrom — 621 Quantitative imaging of mouse L-6 monoclonal antibody in breast cancer patients to develop a therapeutic strategy

Gerald DeNardo, Sally DeNardo, David Kukis, Habibe Diril, Cathy Suey and Claude Meares — 633 Strategies for enhancement of radioimmunotherapy

Amolak Singh, Barbara D. Belshe and Mary K. Gumerlock — 641 Radionuclide assessment of blood–brain barrier disruption performed for chemotherapy of high grade malignant brain gliomas

P. V. Kulkarni — 647 Recent developments in ^{99m}Tc and ^{123}I-radiopharmaceuticals for SPECT imaging

Tuhin K. Chaudhuri — 655 Radionuclide methods of detecting acute gastrointestinal bleeding

Number 7

i Obituary

Editorial
W. C. Eckelman — iii The status of radiopharmaceutical research

Masatoshi Kudo, David R. Vera, Walter L. Trudeau and **Robert C. Stadalnik** — 663 Hepatic uptake of [^{99m}Tc]galactosyl-neoglycoalbumin is sensitive to receptor quantity

Review
Buck A. Rhodes — 667 Direct labeling of proteins with ^{99m}Tc

Daniel Poulain, Marc Deveaux, Jean-Charles Cailliez, Claude Hossein-Foucher, Emmanuel Dutoit, Daniel Camus, Jan Van Cutsem and **Xavier Marchandise** — 677 Imaging of systemic *Candida albicans* infections with a radioiodinated monoclonal antibody: experimental study in the guinea pig

N. Willmott, T. Murray, R. Carlton, Y. Chen, H. Logan, G. McCurrach, R. G. Bessent, J. A. Goldberg, J. Anderson, J. H. McKillop and **C. S. McArdle** — 687 Development of radiolabelled albumin microspheres: a comparison of gamma-emitting radioisotopes of iodine (^{131}I) and indium (^{111}In/^{113m}In)

J. Y. Garron, M. Moinereau, R. Pasqualini and **J. C. Saccavini** — 695 Direct ^{99m}Tc labeling of monoclonal antibodies: radiolabeling and *in vitro* stability

C. R. Divgi, K. McDermott, D. K. Johnson, K. E. Schnobrich, R. D. Finn, A. M. Cohen and **S. M. Larson** — 705 Detection of hepatic metastases from colorectal carcinoma using indium-111 (^{111}In) labeled monoclonal antibody (mAb): MSKCC experience with mAb ^{111}In–C110

Bernard Van Gansbeke, Jacques Timmermans, André Schoutens and **André J. Moës** — 711 Intragastric positioning of two concurrently ingested pharmaceutical matrix dosage forms

F. Virzi, B. Fritz, M. Rusckowski, M. Gionet, H. Misra and **D. J. Hnatowich** — 719 New indium-111 labeled biotin derivatives for improved immunotargeting

N. Leners, A. Ferrant and **F. Jamar** — 727 Evaluation of two ^{111}In-oxinate formulations for labelling of white blood cells

S. S. Jurisson, W. Hirth, K. E. Linder, R. J. Di Rocco, R. K. Narra, D. P. Nowotnik and **A. D. Nunn** — 735 Chloro → hydroxy substitution on technetium BATO [TcCl-(Dioxime)$_3$BR] complexes

Kiichi Ishiwata, Tatsuo Ido, Mieko Kawamura, Kazuo Kubota, Masamitsu Ichihashi and **Yutaka Mishima** — 745 4-Borono-2-[^{18}F]fluoro-D,L-phenylalanine as a target compound for boron neutron capture therapy: tumor imaging potential with positron emission tomography

Virginia K. Langmuir, Judeth K. McGann, Franz Buchegger and **Robert M. Sutherland** — 753 The effect of antigen concentration, antibody valency and size, and tumor architecture on antibody binding in multicell spheroids

Meral T. Ercan and **Naci M. Bor** — 765 Phagocytosis by macrophages in zinc-deficient rats

S. J. Gatley, E. R. DeSombre, R. C. Mease, R. E. Seevers, A. Hughes, J. Li and **M.-L. Pan** — 769 Synthesis, purification and stability of no carrier added radioiodinated 1,1-bis(4-hydroxyphenyl)-2-iodo-2-phenylethylene (IBHPE), a prototype triphenylethylene estrogen-receptor binding radiopharmaceutical

J. Rousseau, R. W. Boyle, A. H. Maclennan, T. G. Truscott and **J. E. van Lier** — 777 Biodistribution and tumor uptake of [^{67}Ga]chlorogallium-tetraoctadecyloxy phthalocyanine and its sulfonation products in tumor bearing C3H mice

Roger F. Brown, Lisa C. Lindesmith and **Delbert E. Day** — 783 ^{166}Holmium-containing glass for internal radiotherapy of tumors

Makiko Suehiro, Alan A. Wilson, Ursula Scheffel, Robert F. Dannals, Hayden T. Ravert and **Henry N. Wagner Jr** — 791 Radiosynthesis and evaluation of *N*-(3-[^{18}F]fluoropropyl)-paroxetine as a radiotracer for *in vivo* labeling of serotonin uptake sites by PET

John K. Amartey and **Walter Wolf** — 797 The hexachlorotechnetate reagent in the synthesis, characterization and biodistribution of two novel lipophilic complexes

Michael R. Kilbourn, G. Keith Mulholland, Phil S. Sherman and Teresa Pisani — 803 *In vivo* binding of the dopamine uptake inhibitor [^{18}F]GBR 13119 in MPTP-treated C57BL/6 mice

C. J. Mathias, M. J. Welch, D. J. Perry, A. H. McGuire, X. Zhu, J. M. Connett and M. A. Green — 807 Investigation of copper-PTSM as a PET tracer for tumor blood flow

Fyllis L. Otsuka, Michael J. Welch, Michael R. Kilbourn, Carmen S. Dence, William G. Dilley and Samuel A. Wells Jr — 813 Antibody fragments labeled with fluorine-18 and gallium-68: *in vivo* comparison with indium-111 and iodine-125 labeled fragments

Bo Kalin, Patrik Sellin, Susanna von Krusenstierna, P.-O. Schnell and Hans Jacobsson — 817 Effect of size fractionation on the distribution of an albumin colloid in the reticuloendothelial system of the mouse

Peter Nielsen, Bernd Dresow, Roland Fischer, and Hellmuth C. Heinrich — 821 Inhibition of intestinal absorption and decorporation of radiocaesium in humans by hexacyanoferrates(II)

Number 8

Ellen D. Yorke, Paul L. Beaumier, Barry W. Wessels, Alan R. Fritzberg and A. Charles Morgan Jr — 827 Optimal antibody–radionuclide combinations for clinical radioimmunotherapy: a predictive model based on mouse pharmacokinetics

N. P. L. G. Verhoeff, M. Bobeldijk, M. G. P. Feenstra, G. J. Boer, M. A. W. Maas, E. Erdtsieck-Ernste, K. de Bruin and E. A. van Royen — 837 *In vitro* and *in vivo* D2-dopamine receptor binding with [^{123}I]S(−)iodobenzamide ([^{123}I]IBZM) in rat and human brain

Shuji Kojima, Noriko Shimura, Akiko Kubodera, Kazuhiko Kubota, Toshio Takahashi and Hiyoshimaru Oyamada — 847 Radioimmunodetection of human colon cancer in nude mice by a new monoclonal antibody A7 against human colorectal cancer

Graham E. Jackson, Michael J. Byrne, Gerry Blekkenhorst and Antony J. Hendry — 855 Chromium–cage complex as contrast agent in MR imaging—biodistribution studies of the [^{57}Co]cobalt analogue

Otis Yin, Jagat Narula, Naseem Nossiff and Ban An Khaw — 859 Correlation of immunoreactivity and polymer formation to DTPA modification of a monoclonal antibody

Amy Barnhart-Bott and Mark A. Green — 865 The effects of glutathione depletion on the biodistribution of Cu(PTSM) in rats

Christer Halldin, Lars Farde, Thomas Högberg, Håkan Hall, Peter Ström, Annesophie Ohlberger and Olof Solin — 871 A comparative PET-study of five carbon-11 or fluorine-18 labelled salicylamides. Preparation and *in vitro* dopamine D-2 receptor binding

P. Cassiede, J. Vilamitjana-Amedee, R. Bareille, L. Vuillemin and M. F. Harmand — 883 Biodistribution study of a monoclonal antibody specific to link proteins from human cartilage

A. Sundin, P. Enblad, H. Ahlström, J. Carlsson, E. Maripuu and A. Hedin — 891 Radioimmunolocalization of human colonic cancer xenografts; aspects of extensive purification of monoclonal anti-CEA-antibodies

Technical Note

F. Huguet, S. Chalon, D. Guilloteau and J. C. Besnard — 901 Spiperone: a receptor ligand and/or a granular uptake tracer?

Corrigendum — i

Announcement — ii